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**SOME MORE NEW TYPHLOCYBINE LEAFHOPPERS
(HOMOPTERA, CICADELLIDAE) FROM THE
KATHMANDU AREA, NEPAL**

By V.K. THAPA

Research Trips for Agricultural and Forest Insects in the Subcontinent of India,
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Abstract

THAPA, V.K., 1989. Some more new typhlocybine leafhoppers (Homoptera, Cicadellidae) from the Kathmandu area, Nepal. *Ins. matsum. n. s.* 42: 111-122, 7 figs.

Three new genera (*Takagioma*, *Matsumurama* and *Masaakia*), based on three new species, are proposed. Four new species of *Farynala* Dwor., *Zorka* Dwor., *Arboridia* Zachv., and *Tautoneura* Anufriev are also described and illustrated. *Empoasca (Distantasca) tna* Dwor., 1980, *Farynala extremita* Dwor., 1980, and *Andrabia aurea* Dwor. et Sohi, 1978, are new records to Nepal.

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Contents

Introduction	113
New taxa and new records	
Dikraneurini	
<i>Takagioma</i> gen. nov.	113
1. <i>T. unita</i> sp. nov.	113
Empoascini	
<i>Empoasca</i>	
2. <i>E. (Distantasca) tna</i>	114
<i>Matsumurama</i> gen. nov.	114
3. <i>M. euonymi</i> sp. nov.	115
Typhlocybini	
<i>Farynala</i>	
4. <i>F. extremita</i>	116
5. <i>F. silacea</i> sp. nov.	116
<i>Zorka</i>	
6. <i>Z. lamellata</i> sp. nov.	117
Erythroneurini	
<i>Andrabia</i>	
7. <i>A. aurea</i>	118
<i>Arboridia</i>	
8. <i>A. gaurii</i> sp. nov.	118
<i>Tautoneura</i>	
9. <i>T. manica</i> sp. nov.	119
<i>Masaakia</i> gen. nov.	120
10. <i>M. nema</i> sp. nov.	120
Acknowledgements	121
References	121

INTRODUCTION

This paper is my second compilation of work done in connection with "Research Trips for Agricultural and Forest Insects in the Subcontinent of India" in 1983 (Aug.-Dec.). In this paper seven new species of typhlocybines all collected from the Godawari and Nagarjun (also called Raniban) areas, Kathmandu, alt. about 1,400-1,500 m, are described and illustrated. Here, three other described species, as new records to Nepal, are also dealt with.

Dworakowska (1980a, b & 1981), Thapa (1983, 1984 & 1985) and Thapa et Sohi (1986) also described some typhlocybine leafhoppers from other parts of Kathmandu. Present paper adds seven new leafhoppers (one from Dikraneurini, one from Empoascini, two from Typhlocybini and three from Erythroneurini) from the Kathmandu area. The holotypes of all the new species will be deposited at the British Museum (Nat. Hist.), London, and paratypes at the Natural History Museum, Tribhuvan University, Kathmandu; Forest Research Institute, Dehra Dun, India; and Entomological Institute, Hokkaidō University, Sapporo, Japan.

NEW TAXA AND NEW RECORDS

Tribe Dikraneurini McAtee, 1934

Takagioma gen. nov.

Type-species: *Takagioma unita* sp. nov.

This genus is different from all other dikraneurines in having all the apical veins of fore wing of common origin. Lateral process of pygofer lobe large, paramere acuminate at either end, subgenital plates united and penis fused with connective.

1. *Takagioma unita* sp. nov. (Fig. 1)

Medium sized, greenish species. Eyes blackish, head conical anteriorly, anterior margin of vertex and lateral sides of pronotum white, coronal suture less marked except at base and upto almost half of vertex midlength. Central vertex, anterior margin of pronotum and scutellum including basal triangles ochraceous, pronotal disc and scutum dirty ochraceous. Face a little flattened, wide and shorter; frons ochraceous and sides black. Fore wing of almost uniform width but outer marginal end longer, long and almost transparent line with darker sides on upper half of the wing, apical cells fuscous and about 1/3 of total wing length, clavus and corium prasinous. Hind wing light fuscous with darker veins. Abdominal apodeme very simple and short.

Male genitalia. Pygofer side lobe smaller, lateral process arcuate at almost middle region (Fig. 1.6) and basal region enlarged, anal tube long; subgenital plate narrowing distally, many setae outwards and a few at apex. Paramere with a lobe-like process medially, either end acuminate as in type-species of *Pusaneura* Ram. et Men. Connective wing-like and fused with penis, penis shaft arcuate apically and genital pore subterminal (Fig. 1.8a, b).

Measurements. Male: 3.30 mm long and 0.70 mm wide. Female: 3.80 mm long.

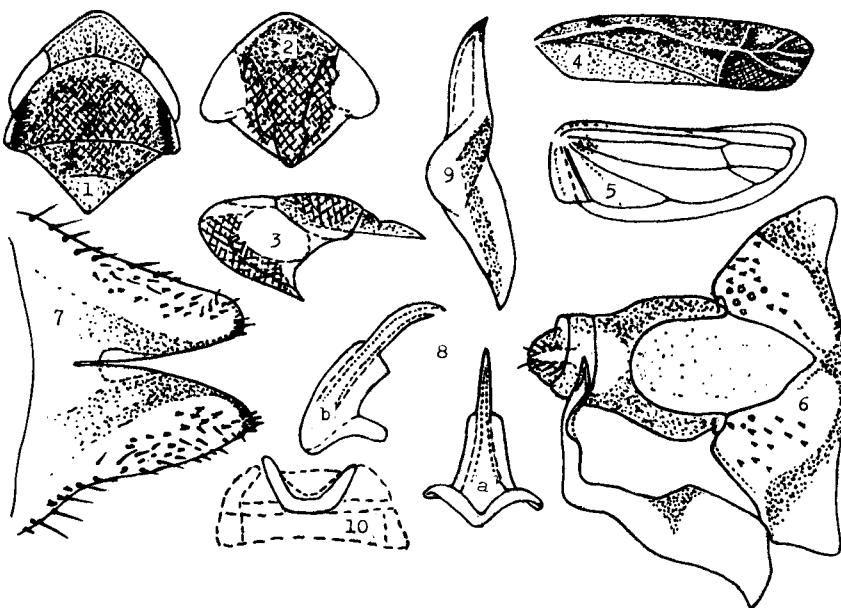


Fig. 1. *Takagioma unita* gen. et sp. nov. 1. Head, dorsal view. 2. Head, ventral view. 3. Head, lateral view. 4. Fore wing. 5. Hind wing. 6. Pygofer and anal tube. 7. Subgenital plates. 8. a. Penis and connective (fused), dorsal view, b. Penis and connective, lateral view. 9. Paramere. 10. Abdominal apodeme.

Specimens examined. Holotype ♂ and paratype 1♀, Kathmandu: Nagarjun Forest, 23.ix.1983, ex *Litsea* sp.

Remarks. This genus resembles *Pusaneura* Ram. et Men., 1971, in the dorsoventrally flattened body, the conically produced vertex and the paramere acuminate at ends. But the vannal vein of hind wing in the present genus is as in *Alconeura* (subgenus *Hyloidea*) described on the same paper. Otherwise the new genus differs from all the rest of dikraneurines in many characteristics. The genus is in honour of Dr. Sadao Takagi of Hokkaidō University, Japan.

Tribe Empoascini Ahmed, 1969

Empoasca Walsh, 1862

2. *Empoasca (Distantasca) tna* Dwor., 1980c, p. 163, India.

Specimens examined. 1♂, 2♀, Kathmandu: Godawari (Royal Bot. Garden), 15.ix.1983, ex *Butea monosperma* (Lam.) Taub.

Matsumurama gen. nov.

Type-species: *Matsumurama euonymi* sp. nov.

Subgenital plate with a single row of macrosetae, pygofer lateral process large and flattened, no ocelli on head, other characters as in *Alebroides* Mats., 1931.

3. *Matsumurama euonymi* sp. nov. (Fig. 2)

Medium sized, yellowish-grey species. Eyes black; vertex light yellow and almost rounded apically, coronal suture longer than vertex midlength. Face light yellow but anteclypeus and gena almost transparent, frontal suture beyond the antennal base. Pronotum yellowish, fuscous at postero-lateral angle and fuscous-yellow centrally, scutum and scutellum light fuscous except at centre, basal triangles indiscernible. Fore wing light fuscous with a light yellowish tinge except towards outer margin and corium, clavus light darker and apical cells light fuscous, a little wider near the apical region. Abdominal sternites light creamy and tergites light black.

Male genitalia. Subgenital plate fusiform with a row of macrosetae outwardly and many hair-like setae distally. Pygofer side with a large and flattened lateral process carrying fine seta-like processes, distal region narrow and short. Paramere, connective and penis agree in general shape with *Alebroides* Mats.

Measurements. Male: 4.0 mm long and 0.90 mm wide. Female: 4.0-4.20 mm long.

Specimens examined. Holotype ♂ and paratypes 35♂♂, 53♀♀, Kathmandu: Godawari (Royal Bot. Garden), 15.ix.1983, ex *Euonymus hamiltonianus* Wall.

Remarks. It is alike to *Alebroides* Mats. in body shape and most male genital appendages. But this new genus differs from the same in having only one row of macrosetae on subgenital plate, in the pygofer lateral process flattened and bigger, in having no ocellus, and in host-plant. Generic name is in honour of highly dignified and seniormost typhlocybine taxonomist of Asia, Prof. S. Matsumura of Japan.

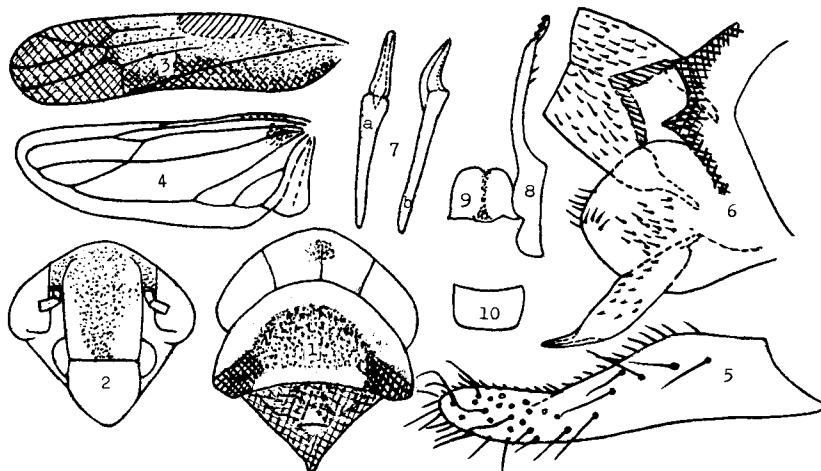


Fig. 2. *Matsumurama euonymi* gen. et sp. nov. 1. Head, dorsal view. 2. Head, ventral view. 3. Fore wing. 4. Hind wing. 5. Subgenital plate. 6. Pygofer lobe and anal tube (part). 7. Penis, a, dorsal view and b, ventro-lateral view. 8. Paramere. 9. Connective. 10. Female seventh abdominal sternite.

Tribe Typhlocybini Young, 1952
Farynala Dwor., 1970

4. *Farynala extremita* Dwor., 1982, p. 143, Thailand.

Specimens examined. 5♂♂, 17♀♀, Kathmandu: Godawari (Royal Bot. Garden), 15.ix.1983, ex *Albizzia* sp.

5. *Farynala silacea* sp. nov. (Fig. 3)

Medium sized, yellowish species with brownish mark on head. Vertex uniform yellow. Pronotum and scutum yellowish, partly light yellow (less densely dotted in Fig. 3.1). Face as long as broad, frontoclypeus and anteclypeus narrowing apically. Fore wing with light fuscous apical cells, other parts yellowish or light yellow (less densely dotted in Fig. 3.3). Abdominal tergites light black and ovipositor tip black.

Male genitalia. These are very much similar to those of *F. starica* Dwor. except the connective (distal end of penis ruptured, Fig. 3.7).

Measurements. Male: 3.10 mm long and 0.60 mm wide. Female: 3.10-3.30 mm long.

Specimens examined. Holotype ♂ (genitalia on slide) and paratypes 5♀♀, Kathmandu: Nagarjun Forest, 23.ix.1983, ex *Albizzia* sp.

Remarks. This species is closely related to *F. starica* Dwor., 1977b, but it can be distinguished by the uniformly yellowish body, by having infuscation at apical cells only and by having no brownish dash along tip part of apical cu vein of fore wing as in *F. starica*. It also differs in the shape of the connective, pygofer lobe having three macrosetae and apical part of paramere also different. Species name of the present species is after the yellowish body colour with a slight tinge of brown.

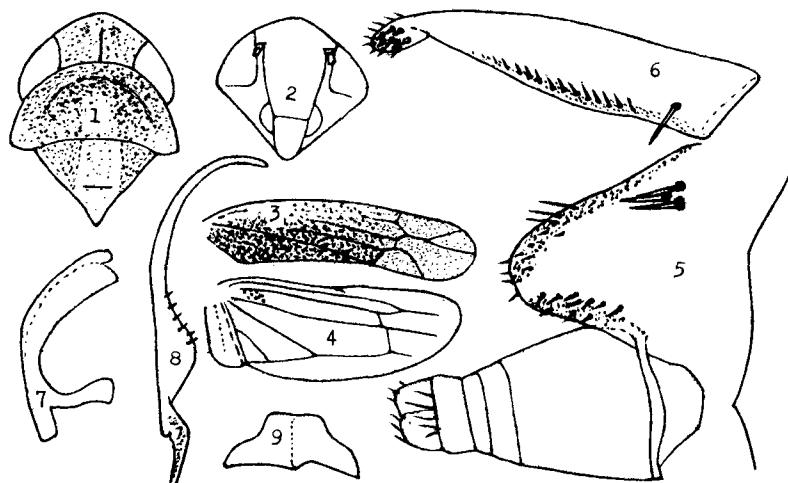


Fig. 3. *Farynala silacea* sp. nov. 1. Head, dorsal view. 2. Head, ventral view. 3. Fore wing. 4. Hind wing. 5. Pygofer lobe and anal tube. 6. Subgenital plate. 7. Penis, lateral view. 8. Paramere. 9. Connective.

6. *Zorka lamellata* sp. nov. (Fig. 4)

Medium sized, yellowish-fuscous species. Head with dark eyes, vertex conical and white with a yellow tinge, partly yellow (dotted in Fig. 4.2), four black spots on vertex and eight on pronotum (hind pairs bigger), coronal suture upto midlength of vertex. Pronotum yellow with white marks tinged with yellow. Length and width of face nearly equal, fronto-clypeus light yellow, large and flattened; anteclypeus swollen and wider than long, black spot behind the antennal base. Basal triangles indiscernible and scutum centre with two black spots, scutellum black apically. Fore wing spotted mostly on corium and clavus, blackish spot at M-apical vein, light fuscous along the veins and other parts (dotted in Fig. 4.3), darker fuscous marks on either side of wax-field.

Male genitalia. Pygofer lobe small but with a single, large and stout lateral process having an additional arcuated side arm nearly mesad, no anal tube process; subgenital plate and connective agree in characters with the type-species of genus. Paramere as in *Z. agnesae* Dwor., 1977 but median lobe and setae pronounced. Penis different from that of any so far described species in having no basal and bifurcated apical process, but atrium associated with three pairs of lamellae (Fig. 4.7a, b) and shaft short, narrow and arcuate with terminal gonopore.

Measurements. Male: 3.30 mm long and 0.80 mm wide. Female: 4.50-3.90 mm long.

Specimens examined. Holotype ♂ and paratypes 4♂♂, 13♀♀, Kathmandu: Godawari nr St. X'vier School, 15.ix.1983, ex walnut (*Juglans regia* L. var. *kumainia*

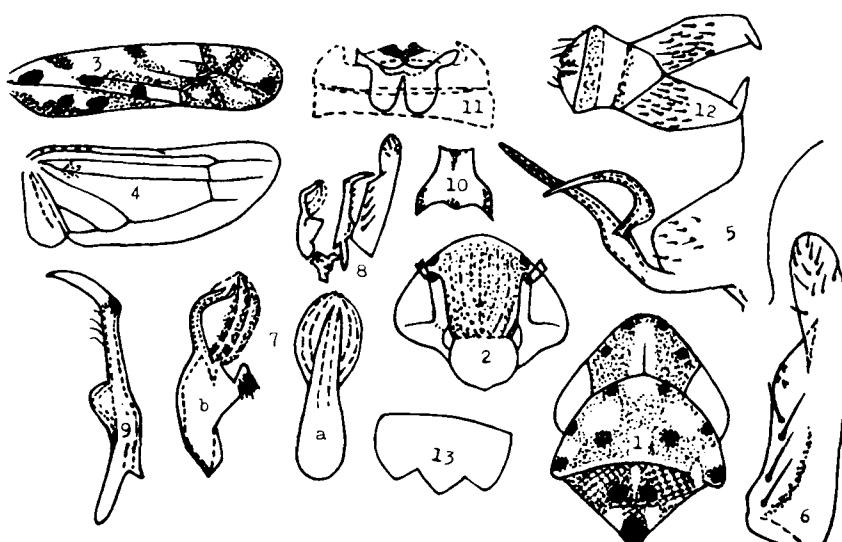


Fig. 4. *Zorka lamellata* sp. nov. 1. Head, dorsal view. 2. Head, ventral view. 3. Fore wing. 4. Hind wing. 5. Pygofer lobe. 6. Subgenital plate. 7. Penis, a, dorsal view, b, lateral view. 8. Paramere, subgenital plate, connective and penis. 9. Paramere. 10. Connective. 11. Abdominal apodeme. 12. Anal tube. 13. Female seventh abdominal sternite.

C.DC).

Remarks. It is superficially similar to *Z. annae* Dwor., 1970, and *Z. ariadnae* Dwor., 1970, in the body pigmentation including the wing, the structure of connective and subgenital plate. But the structure of the penis and pygofer lobe with its process are different. This new species is named after the lamellae on the penis atrium.

Tribe Erythroneurini Young, 1952
Andrabia Ahmed, 1970

7. *Andrabia aurea* Dwor. et Sohi, 1978, p. 467, India (Kulu).

Specimens examined. 8♂♂, 5♀♀, Kathmandu: Godawari (Royal Bot. Garden), 15.ix.1983, ex *Zanthoxylum armatum* DC.

Arboridia Zachv., 1946

8. *Arboridia gaurii* sp. nov. (Fig. 5)

Medium sized, orange-brown species with black eyes. Head light orange, with white marks, light fuscous around, near the anterior margin, and a black mark near the posterior margin, of vertex. Pronotum, scutum and scutellum orange except pronotal disc with an orange tinge, basal triangles black. Scutum declivous posteriorly. Face yellowish except gena, frons narrowing posteriorly and with an almost rectangular mark with a fuscous scar near the margin, anteclypeus light fuscous apically. Fore wing light brown, wax-field and clavus darker, of uniform width and apical cells a little more than 1/3 of total wing length. Hind wing with fuscous veins. Abdominal apodeme reduced (Fig. 1.10).

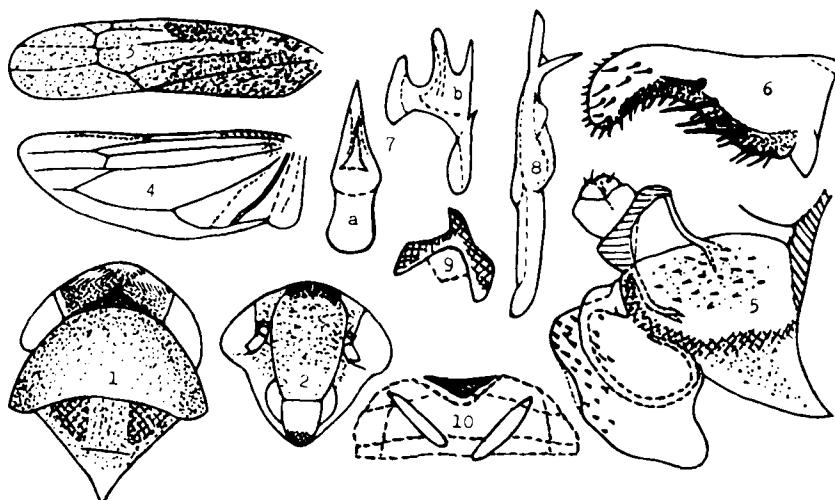


Fig. 5. *Arboridia gaurii* sp. nov. 1. Head, dorsal view. 2. Head, ventral view. 3. Fore wing. 4. Hind wing. 5. Pygofer lobe anal tube. 6. Subgenital plate. 7. Penis, a, dorsal view, b, lateral view. 8. Paramere. 9. Connective. 10. Abdominal apodeme.

Male genitalia. Pygofer lobe with a distinct lateral side lobe and a very long and narrowing proclinate dorsal process; subgenital plate and connective almost as in *A. cerna* Dwor., but paramere apical extensions almost equally developed. Penis smaller with more developed shaft, reduced preatrial process and smaller dorsal apodeme (Fig. 5.7a).

Measurements. Male: 3.85 mm long and 0.75 mm wide. Female: 3.80-4.0 mm long.

Specimens examined. Holotype ♂ and paratypes 10♂♂, 4♀♀, Kathmandu: Godawari (Royal Bot. Garden), 15.ix.1983, ex *Zanthoxylum armatum* DC.

Remarks. This species is quite similar to *A. cerna* Dwor., 1977b, in the orange body and some genital structures. But the markings on the vertex and pronotum are different and the structures of pygofer dorsal process, apical extension of the paramere as well as penis are different as discussed above. This new species is named in honour of former leafhopper taxonomist, Dr. M.S.K. Gauri of British Museum (Nat. Hist.), London.

Tautoneura Anufriev, 1969

9. *Tautoneura manica* sp. nov. (Fig. 6)

Smaller, citrine-yellow species with brownish eyes. Vertex partly white and partly tinged brown; coronal suture distinct, with a small V-shaped citrine mark as in Fig. 6.1. Pronotum tinged white with V-shaped citrine mark on disc and light citrine conical marks on lateral sides, posterior margin almost transparent. Sides of basal triangles and apical region of scutellum citrine, rest parts white and tinged brown. Face dirty, area below antennal base light creamy white. Fore wing light yellow but light fuscous apically and two dark brown-black spots closer to the outer margin, area marked with cross-lines in Fig. 6.3 rusty red colour.

Male genitalia. Pygofer lobe having no lateral appendage, connective and abdominal apodeme as in *T. ahmedi* Dwor., 1977a (described from Dehra Dun, India, on *Rosa* sp.), but dorsal appendage of pygofer, connective as well as penis almost as

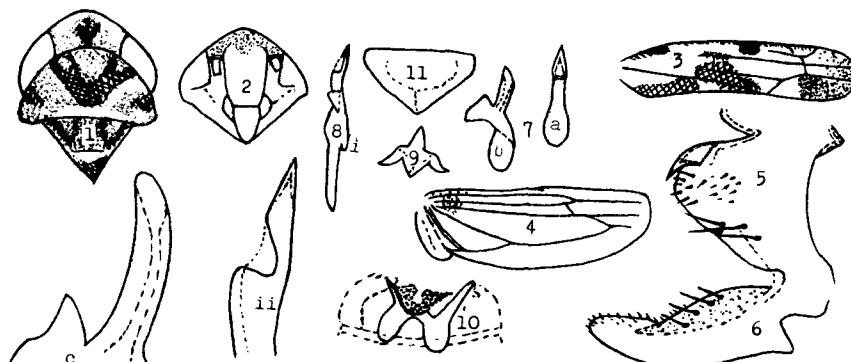


Fig. 6. *Tautoneura manica* sp. nov. 1. Head, dorsal view. 2. Head, ventral view. 3. Fore wing. 4. Hind wing. 5. Pygofer lobe. 6. Subgenital plate. 7. Penis, a, dorsal view, b, lateral view, c, enlarged lateral view. 8. Paramere, i, side view, ii, enlarged side view. 9. Connective. 10. Abdominal apodeme.

in *T. secunda* Dwor., 1979, described from Vietnam. Gonopore on penis stem terminal in the present species as in *T. ahmedi* Dwor. The new species differs from both of these species in paramere and subgenital plate.

Measurements. Male: 2.60 mm long and 0.60 mm wide. Female: 3.10-3.30 mm long.

Specimens examined. Holotype ♂ and paratypes 9♂♂, 28♀♀, Kathmandu: Nagarjun, 23.ix.1983, ex *Grewia* sp.

Remarks. As discussed above this species is related to *T. ahmedi* Dwor., 1977, and *T. secunda* Dwor., 1979. Present species, however, differs from them in body colour and in the structures of the penis and the paramere. The new species name is a combination of letters.

Masaakia gen. nov.

Type-species: *Masaakia nema* sp. nov.

First and second apical veins of fore wing of common origin, anteclypeus shorter and wide. Pygofer lobe with only a small process at hind margin, subgenital plate with a few macrosetae on apical half of outer margin, connective inverted U-shaped and paramere enlarged apically. Penis almost as in *Frutiodia* Zachv. and *Arboridia* Zachv.

10. *Masaakia nema* sp. nov. (Fig. 7)

Smaller, brownish-yellow species with dark eyes. Vertex yellowish, produced anteriorly and with four black spots (two smaller and two bigger), coronal suture visible, fuscous mark at tip of suture. Pronotum fuscous, anterior region yellowish and posterior region almost transparent, spots black. Basal triangles and apex of scutellum black, centre of scutum darker, fuscous and rest regions yellowish. Face as long as broad, yellowish, fuscous on lower half (cross-lined in Fig. 7.2), the rest yellowish with light brown mark near the margin, lateral frontal suture running

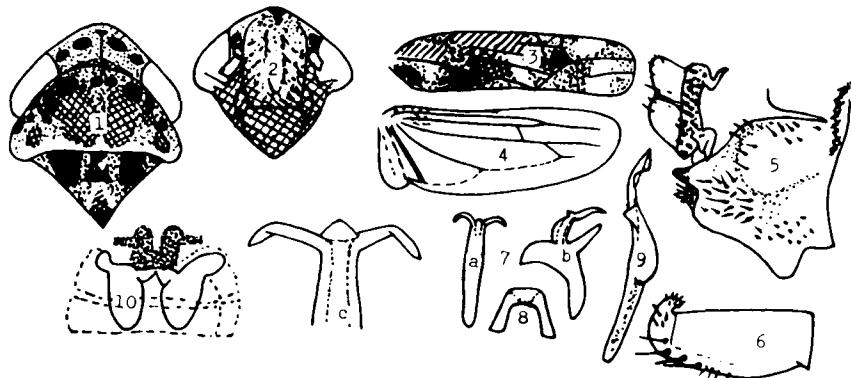


Fig. 7. *Masaakia nema* gen. et sp. nov. 1. Head, dorsal view. 2. Head, ventral view. 3. Fore wing. 4. Hind wing. 5. Pygofer lobe and anal tube. 6. Subgenital plate. 7. Penis, a, dorsal view, b, lateral view. 8. Connective. 9. Paramere. 10. Abdominal apodeme.

above antennal base, a small fuscous mark near the antennal base. First two apical veins of fore wing as in *Frutiodia kameruna* Dwor., 1976, but of common origin, partly fuscous (dotted in Fig. 7.3), partly yellowish (oblique-lined), a region near posterior margin reddish at centre and rusty around (cross-lined). Main veins of hind wing fuscous but marginal and cross-veins transparent.

Male genitalia. Hind margin of pygofer lobe with a small and slightly sclerotized process and a small group of microsetae; anal tube process small as in *F. smuga* Dwor., 1977; subgenital plate almost straight on inner margin and bent apically; paramere narrow subapically and connective almost as in *F. cardiaca* Dwor., 1980, but penis almost as in *Arboridia soror* Dwor., 1977, with a pair of terminal processes on shaft.

Measurements. Male: 2.80 mm long and 0.70 mm wide. Female: 2.80-3.0 mm long.

Specimens examined. Holotype ♂ and paratypes 30♂♂, 33♀♀, Kathmandu: Godawari (Royal Bot. Garden), 15.ix.1983, ex *Rhus javanicus* Linn.

Remarks. This species has some common features with a few species of *Frutiodia* Zachv., 1946, especially with *F. kameruna* Dwor., in apical veins of fore wing and its colour as well as in the structure of the penis. But it is so distinct in some features such as pygofer process, subgenital plate, connective and the paramere as described above and illustrated in Fig. 7, that a new genus is created and named in honour of Dr. Masaaki Suwa of Hokkaidô University, Japan. The specific name is an arbitrary combination of letters.

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